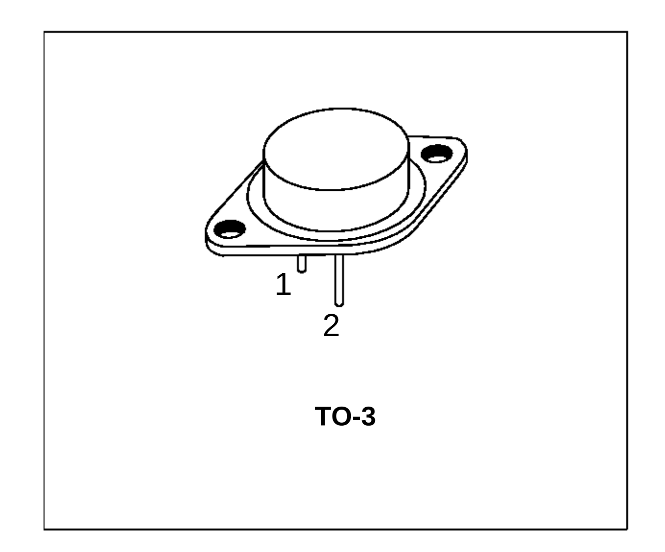
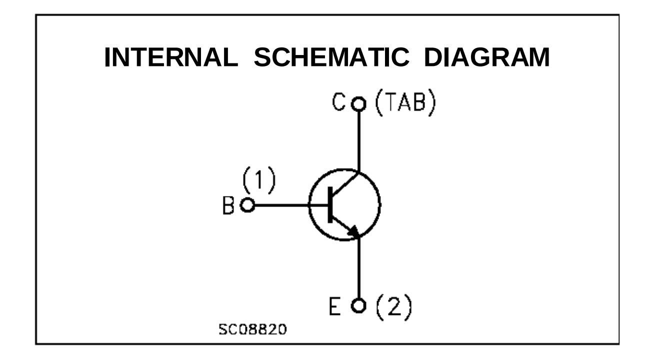


BUV42

SILICON NPN SWITCHING TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- FAST SWITCHING TIMES
- LOW SWITCHING LOSSES
- VERY LOW SATURATION VOLTAGE AND HIGH GAIN FOR REDUCED LOAD OPERATION





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CEV}	Collector-emitter Voltage (V_{BE} = -1.5V)	350	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)	250	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7	V
I_C	Collector Current	12	A
I_{CM}	Collector Peak Current	18	A
I_B	Base Current	2.5	A
I_{BM}	Base Peak Current	4	A
P_{Base}	Reverse Bias Base Dissipation (B.E. junction in avalanche)	1	A
P_{tot}	Total Dissipation at $T_{case} \leq 25\ ^oC$	120	W
T_{stg}	Storage Temperature	-65 to 200	^oC
T_j	Max Operating Junction Temperature	200	^oC

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.46	$^oC/W$

ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^oC unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current (R_{BE} = 10Ω)	$V_{CE} = V_{CEV}$ $V_{CE} = V_{CEV}$ $T_c = 100^oC$			0.5 2.5	mA mA
I_{CEV}	Collector Cut-off Current	$V_{CE} = V_{CEV}$ V_{BE} = -1.5V $V_{CE} = V_{CEV}$ V_{BE} = - 1.5V T_C=100^oC			0.5 2	mA mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage	I_C = 0.2A L = 25 mH	250			V
V_{EB0}	Emitter-base Voltage (I_c = 0)	I_E = 50 mA	7			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2A I_B = 0.13A I_C = 4A I_B = 0.4A I_C = 6A I_B = 0.75A I_C = 2A I_B = 0.13A T_j = 100^oC I_C = 4A I_B = 0.4A T_j = 100^oC I_C = 6A I_B = 0.75A T_j = 100^oC		0.25 0.4 0.5 0.25 0.45 0.6	0.8 0.9 1.2 0.9 1.2 1.5	V V V V V V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 4A I_B = 0.4A I_C = 6A I_B = 0.75A I_C = 4A I_B = 0.4A T_j = 100^oC I_C = 6A I_B = 0.75A T_j = 100^oC		1 1.1 0.9 1.1	1.3 1.5 1.3 1.5	V V V V
di_c/d_t*	Rated of Rise of on-state Collector Current	V_{CC} = 200V R_C = 0 I_{B1} = 0.6A T_j = 25^oC T_j = 100^oC	 25 20	 40 35		 A/µs A/µs
$V_{CE(2µs)}$	Collector Emitter Dynamic Voltage	V_{CC} = 200V I_{B1} = 0.4A R_C = 50Ω T_j = 25^oC T_j = 100^oC		 1.7 2.5	 2.5 4	 V V
$V_{CE(4µs)}$	Collector Emitter Dynamic Voltage	VCC = 200V I_{B1} = 0.4A R_C = 50Ω T_j = 25^oC T_j = 100^oC		 0.9 1.1	 1.7 2	 V V

∗ Pulsed: Pulse duration = 300 µs, duty cycle = 2 %

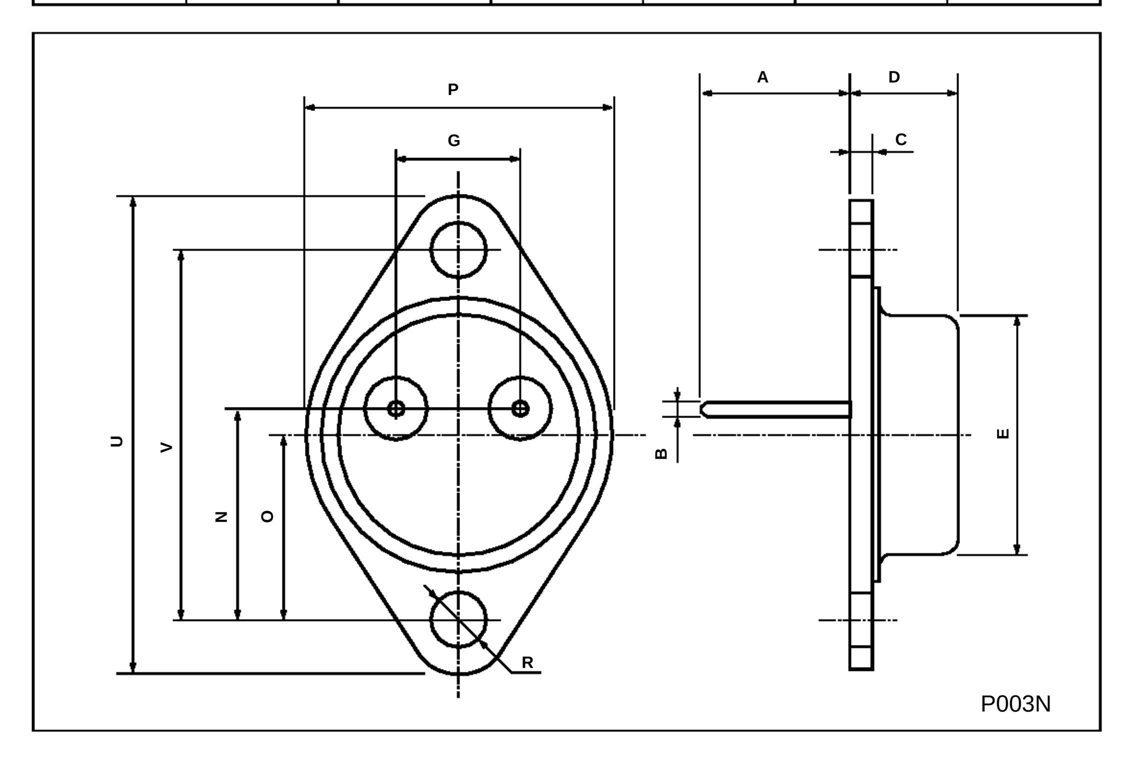
ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t_r t_s t_f	**RESISTIVE LOAD** Rise Time Storage Time Fall Time	V_{CC} = 200V V_{BB} = -5V R_{B2} = 3.3Ω	I_C = 6A I_{B1} = 0.75A T_p = 30μs		0.3 1 0.15	0.4 1.6 0.3	μs μs μs
t_s t_f t_t t_c	**INDUCTIVE LOAD** Storage Time Fall Time Tail Time in Turn-on Crossover Time	V_{CC} = 200V I_{CC} = 4A V_{BB} = -5V L_C = 2.5mH	V_{clamp} = 250V I_B = 0.4A R_{B2} = 6.3Ω		1.2 0.08 0.03 0.15	1.8 0.2 0.12 0.35	μs μs μs μs
t_s t_f t_t t_c	Storage Time Fall Time Tail Time in Turn-on Crossover Time	VCC = 200V I_{CC} = 4A V_{BB} = -5V L_C = 2.5mH	V_{clamp} = 250V I_B = 0.4A R_{B2} = 6.3Ω T_j = 100°C		1.8 0.2 0.08 0.4	2.4 0.4 0.2 0.7	μs μs μs μs
t_s t_f t_t	Storage Time Fall Time Tail Time in Turn-on	V_{CC} = 200V I_{CC} = 4A V_{BB} = 0 L_C = 2.5mH	V_{clamp} = 250V I_B = 0.5A R_{B2} = 7.5Ω		2.5 0.4 0.15		μs μs μs
t_s t_f t_t	Storage Time Fall Time Tail Time in Turn-on	V_{CC} = 200V I_{CC} = 4A V_{BB} = 0 L_C = 2.5mH	V_{clamp} = 250V I_B = 0.4A R_{B2} = 7.5Ω T_j = 100°C		4.8 0.7 0.4		μs μs μs

∗ Pulsed: Pulse duration = 300 μs, duty cycle = 2 %

TO-3 (H) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	




SGS-THOMSON
MICROELECTRONICS